

Amendments to the Claims

Claims 1-10 (Previously cancelled).

C¹ 1.

Claim 1 (Currently amended): A method of forming a nitrogen-enriched region within a silicon-oxide-containing layer, comprising:

providing the silicon-oxide-containing layer over a substrate; the silicon-oxide-containing layer having a bare upper surface above the substrate and a lower surface on the substrate;

exposing the silicon-oxide-containing layer to an activated nitrogen species from a nitrogen-containing plasma to introduce nitrogen into the silicon-oxide-containing layer and form a nitrogen-enriched region, the ~~nitrogen-enriched~~ nitrogen-enriched region being only in an upper half of the silicon-oxide-containing layer; and

thermally annealing the nitrogen within the nitrogen-enriched region, while the bare upper surface of the silicon-oxide-containing layer remains bare, to bond at least some of the nitrogen to silicon proximate the nitrogen; the nitrogen-enriched region remaining confined to the upper half of the silicon-oxide-containing layer during the annealing; ~~the thermal annealing comprising rapid thermal processing at a ramp rate of at least about 50°C/sec to a process temperature of less than 1000°C, with the process temperature being maintained for at least about 30 seconds.~~

2. ¹
Claim ~~12~~ (Currently amended): The method of claim ~~11~~ wherein the nitrogen-enriched region is formed only in the upper third of the ~~silicon-oxide~~ silicon-oxide-containing layer by the exposing.

3. ¹
Claim ~~13~~ (Currently amended): The method of claim ~~11~~ wherein the nitrogen-enriched region is formed only in the upper third of the ~~silicon-oxide~~ silicon-oxide-containing layer by the exposing and remains confined to the upper third of the ~~silicon-oxide-containing~~ silicon-oxide-containing layer during the annealing.

4. ¹
Claim ~~14~~ (Currently amended): The method of claim ~~11~~ wherein the nitrogen-enriched region is formed only in the upper fourth of the ~~silicon-oxide~~ silicon-oxide-containing layer by the exposing and remains confined to the upper fourth of the ~~silicon-oxide-containing~~ silicon-oxide-containing layer during the annealing.

5. ¹
Claim ~~15~~ (Currently amended): The method of claim ~~11~~ wherein the nitrogen-enriched region is formed only in the upper fifth of the ~~silicon-oxide~~ silicon-oxide-containing layer by the exposing and remains confined to the upper fifth of the ~~silicon-oxide-containing~~ silicon-oxide-containing layer during the annealing.

6. ¹
Claim ~~16~~ (Currently amended): The method of claim ~~11~~ wherein the silicon-oxide-containing layer is maintained at a temperature of less than 200°C during the exposing.

7.

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Claim ~~17~~ (Original): The method of claim ~~11~~ wherein the plasma is maintained with a power of from about 500 watts to about 5000 watts during the exposing.

8.

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Claim ~~18~~ (Original): The method of claim ~~11~~ wherein the exposing occurs within a reactor, and wherein a pressure within the reactor is from about 5 mTorr to about 10 mTorr during the exposing.

9.

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Claim ~~19~~ (Original): The method of claim ~~11~~ wherein the exposing occurs for a time of less than or equal to about 1 minute.

[Claim 20-47 (Previously cancelled)

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10.

Claim ~~18~~ (Currently amended): A The method of forming a nitrogen-enriched region within a silicon oxide-containing layer, comprising:

~~providing the silicon oxide-containing layer over a substrate; the layer having an upper surface above the substrate and a lower surface on the substrate;~~

~~exposing the layer to activated nitrogen species from a nitrogen-containing plasma to introduce nitrogen into the layer and form a nitrogen-enriched region, the nitrogen-enriched region being only in an upper half of the silicon oxide-containing layer; and~~

~~thermally annealing the nitrogen within the nitrogen-enriched region to bond at least some of the nitrogen to silicon proximate the nitrogen; the nitrogen-enriched region remaining confined to the upper half of the silicon oxide-containing layer during the annealing; claim 11 wherein the thermal annealing comprising comprises thermal processing at a temperature of about 700°C for a time of about 30 seconds.~~

^{11.}
Claim ~~49~~ (Currently amended): A The method of forming a nitrogen-enriched region within a silicon oxide-containing layer, comprising:

providing the silicon oxide-containing layer over a substrate; the layer having an upper surface above the substrate and a lower surface on the substrate;

C1 exposing the layer to activated nitrogen species from a nitrogen-containing plasma to introduce nitrogen into the layer and form a nitrogen-enriched region, the nitrogen-enriched region being only in an upper half of the silicon oxide-containing layer; and

thermally annealing the nitrogen within the nitrogen-enriched region to bond at least some of the nitrogen to silicon proximate the nitrogen; the nitrogen-enriched region remaining confined to the upper half of the silicon oxide-containing layer during the annealing; ¹claim ~~11~~ wherein the thermal annealing comprising comprises thermal processing at a temperature of about 1050°C for a time of about 5 seconds.

^{12.}
Claim ~~50~~ (New): The method of claim ¹~~11~~ wherein the thermal annealing comprises rapid thermal processing at a ramp rate of at least about 50°C/sec to a process temperature of less than 1000°C, with the process temperature being maintained for at least about 30 seconds.
